Methods: Thirty-nine consecutive cases consulted for undetermined mediastinal lesions from July 2005 to August 2006 were enrolled. Linear echoendoscope and 22-gauge aspiration or 19-gauge Trucut needles were used. Final diagnoses were determined by EUS-FNA/CB cytology, biospy, surgical pathology, or clinical follow-ups.

Results: Indications for EUS-FNA/CB were for histologic sampling in 24 cases (including suspected lung cancer, 9; other malignancy, 6; granulomatous disease, 3; unknown lesion, 6) and for stage confirmation of 15 proven malignancies (lung cancer, 11; extra-pulmonary malignancy, 4). FNA/CB was performed by mean number of 3.6 passes with four minimal complications (fever, 3; pain, 1). Malignant pathology was obtained in 12 cases (primary lung cancer, 7; unknown origin, 4; lymphoma, 1), and nine were defined as benign lesions (tuberculosis, 3; sarcoidosis, 1; reactive lymph node, 4; inconclusive bacterial infection, 1). In staging of 16 patients with proven malignancy (nodal staging of lung cancer, 11; metastasis of extra-pulmonary malignancy, 4; recurrence of breast cancer, 1), 14 cases were diagnostic (metastatic, 7; reactive, 7). Only four specimens (10.3%) were inadequate. Eleven of 39 patients (28.2%) had history of tuberculosis (prior pulmonary history, 7; present clinical impression, 4). Of the seven, six underwent FNA/CB for nodal staging of lung cancer and proved to be diagnostic (metastatic, 2; reactive, 4). The diagnostic accuracy of EUS-FNA/CB was as follows: overall, 87.2% (34/39); malignancy-related, 92.9% (26/28); lung cancer-related, 88.9% (16/18); tuberculosis-related, 90.9% (10/11).

Conclusions: EUS-FNA/CB is an accurate diagnostic modality in tissue confirmation of undetermined mediastinal lesions. In addition, it should be recognized as an indispensable procedure to define benign reactive mediastinal lymph nodes that are commonly encountered in highly prevalent area of pulmonary tuberculosis.

PD1-2-4 EUS and PET-CT in Lung Cancer Staging, Mon, 16:00 - 17:30

FDG-PET Imaging for Staging Early Intraluminal Squamous Cell Cancers

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Introduction: Fluoro-deoxyglucose positron emission tomography (PET) has a diagnostic and prognostic value in staging and surveillance of non-small cell lung cancer. Several studies have also demonstrated its potential in assessing biologic aggressiveness of the primary tumor.

Aims: To evaluate the role of PET for early intraluminal squamous cell cancer (ISCC).

Methods: Patients with early ISCC detected by autofluorescence bronchoscopy (AF) and confined within the airway wall defined initially by high resolution CT at 1 mm (subsequently by multidetector CT at 0.75 mm slices) underwent PET imaging.

Results: Sixty current and former smokers (47 males) with median age 68 years (range, 62-74) were consecutively entered in this study. Twenty four patients had visible tumor margins measuring ≤ 1cm^2 whilst 36 had margins extending beyond the visibility of AFB. PET was positive in 23 patients (38%): 7 (7/24, 39%) patients with margin-visible tumors and 17 (16/36, 44%) with margin-invisible tumors. Nine patients underwent surgery for margin-invisible cancers of which 6 were PET positive. However, 4 of the resected PET positive cancers were found to be severe dysplasia in 3 and mild dysplasia in 1. Mediastinal staging of the 9 patients who underwent surgery revealed 1 true PET positive N1 and 5 true negative N0. Two patients had false PET positive lymph nodes which were adjacent to the primary tumors and 1 had false negative N1 that measured 6mm on CT. No distant metastasis was observed. The remaining patients were surgically unfit and were treated with bronchoscopic therapy. Median follow up was 40 months (range, 21-72), 41 patients were alive and 19 deceased. Lung cancer related mortality was 13%. PET positive cancers did not result in worse survival difference, p= 0.46 (Fig 1).

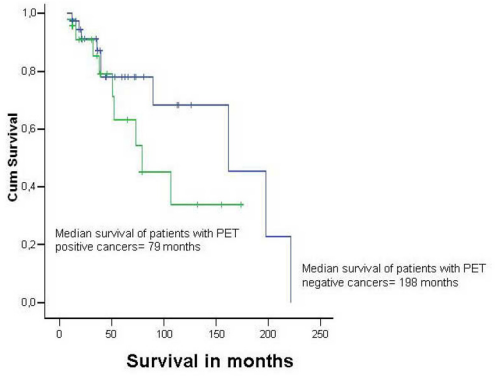

Figure 1: Survival of patients with PET ISCC vs those with PET negative ISCC

Conclusion: Our preliminary results indicated that PET was not useful for the evaluation and prognostication of patients with early ISCC confined within the bronchial wall. In fact, false-positive PET results led to unnecessary surgery in 4 patients.

PD1-2-5 EUS and PET-CT in Lung Cancer Staging, Mon, 16:00 - 17:30

Mediastinal Lymph Node Staging in lung cancer by integrated FDG-PET/CT based SUV value calculation. A prospective series

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Background: Non-small cell lung cancer (NSCLC) staging directs treatment choice and influences prognosis. The diagnostic performance of conventional FDG-PET scan in lymph node (LN) staging is too low to avoid invasive nodal staging. It remains unknown whether the diagnostic performance of integrated FDG-PET/CT for LN staging, and the calculation of Standard Uptake Values (SUV) could make invasive staging redundant.

Methods: We prospectively investigated the mediastinal and/or hilar LN in patients with proven NSCLC with an integrated FDG-PET/CT. Pathologic confirmation of all suspicious LN was obtained. The diagnostic performance of the FDG-PET/CT fusion images and of the SUV calculation was measured to the stage the intrathoracic LN.

Results: 105 intrathoracic LN stations from 52 patients with NSCLC were characterized. The prevalence of LN malignancy was 36%. The sensitivity of integrated FDG-PET/CT to detect malignant LN was 84% and its specificity was 85% (Positive likelihood ratio 5.64, Negative likelihood ratio 0.19). SUVMAX, SUVMEAN and the ratio of SUVMAX/SUVLIVER values were all significantly higher in malignant than in benign LN. The ROC area did not differ between these three